

Claims

1. A proportional pressure control valve with a valve housing (10) having at least three fluid-conducting connections, in particular in the form of a pump (P), a utility (A), and a tank (T) port, it being possible to displace longitudinally inside the valve housing (10), for the purpose of optional connection of the pump port (P) to the utility port A and connection of the utility port (A) to the tank port (T), a control piston (18) which is provided for establishment of a fluid-conducting connection between the pump port (P) and a servo chamber (20) of a pilot valve (22) with a connecting channel (24), the pilot valve (22) being actuatable by a magnet system (28), a proportional magnet system in particular, characterized in that, when the pilot valve (22) has been opened, such pilot valve (22) opens the fluid-conducting path (58) leading partly through the valve housing (10) between the connecting channel (24) and the tank port (T), which is simultaneously connected to the utility port (A) so as to conduct fluid.
2. The proportional pressure control valve as claimed in claim 1, wherein the connecting channel (24) has a screen (34), by preference a screen (34) with a protective screen (36) connected upstream and/or a diffuser (38) connected downstream, in the direction of the servo chamber (22) of the pilot valve (22).
3. The proportional pressure control valve as claimed in claim 1 or 2, wherein the servo chamber (20) is part of a valve seat (42) mounted in the valve housing (10) so as to be stationary, which valve seat (42) is connected to the servo chamber (20) so as to conduct fluid and may be moved into contact with a valve component (40) of the pilot valve (22) so as to effect closing, which valve component (40) of the pilot valve (22) may be moved by the force of a spring to its closed position in the direction of the servo chamber (20).

4. The proportional pressure control valve as claimed in one of claims 1 to 3, wherein the control piston (18) delimits, on its one end facing away from the servo chamber (20) together with the valve housing (10), a damping chamber (62) in which a force accumulator, in particular one in the form of a pressure spring (64), tends to displace the control piston (18) in the direction of the servo chamber (20)
5. The proportional pressure control valve as claimed in claim 4, wherein the damping chamber (62) is connected by way of a damping screen (66) mounted in the control piston (18) to an annular space (68) by which optionally the tank port (T) communicates with the utility port (A) or the utility port (A) communicates with the pump port (P) as a function of the longitudinal position of the control piston (18) in the valve housing (10).
6. The proportional pressure control valve as claimed in claim 4 or 5, wherein the damping chamber (62) is enclosed by the valve housing (10) and on one of its sides by the control piston (18) and on its opposite side by a lift stop (70) for the control piston (10), which closes off the valve housing (10) from the exterior on its one free side.
7. The proportional pressure control valve as claimed in one of claims 1 to 6, wherein the pilot valve (22) is configured as a proportional pressure control valve.
8. The proportional pressure control valve as claimed in one of claims 3 to 7, wherein the valve component (40) of the pilot valve (22) is conducted between two force accumulators in the form of pressure springs (48, 50) so as to be movable longitudinally in a guide component (52) which is mounted so as to be stationary and with the valve seat (42) adjoins a distribution compartment (56) to which the fluid-conducting path (10) is permanently connected.

9. The proportional pressure control valve as claimed in one of claims 1 to 8, wherein all fluid-conducting ports (A, P, T) extend through the valve housing (10) in the radial direction.
10. The proportional pressure control valve as claimed in one of claims 1 to 9 for hydraulically actuatable couplings in which a cylinder space (72) of the couplings is to be connected to a hydraulic pump (16) by way of the valve for the purpose of compression of a disk pack.